



Zoonoses and climate variability

Author(s): Cardenas R, Sandoval CM, Rodriguez-Morales AJ, Vivas P
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Abstract:

Leishmaniasis in the Americas is transmitted by *Lutzomyia* spp., which have many animal reservoirs. Previous studies indicated potential changes in vectors of climate-related distribution, but impact outcomes need to be further studied. We report climatic and El Nino events during 1985-2002 that may have had an impact on leishmaniasis in 11 southern departments of Colombia: Amazonas, Caqueta, Cauca (Ca), Huila, Meta (Mt), Narino, Putumayo (Py), Tolima, Valle (Va), Vaupes (Vp), and Vichada. Climatic data were obtained by satellite and epidemiologic data were obtained from the Health Ministry. NOAA climatic classification and SOI/ONI indexes were used as indicators of global climate variability. Yearly variation comparisons and median trend deviations were made for disease incidence and climatic variability. During this period there was considerable climatic variability, with a strong El Nino for 6 years and a strong La Nina for 8. During this period, 19,212 cases of leishmaniasis were registered, for a mean of 4756.83 cases/year. Disease in the whole region increased (mean of 4.98%) during the El Nino years in comparison to the La Nina years, but there were differences between departments with increases during El Nino (Mt 6.95%, Vp 4.84%), but the rest showed an increase during La Nina (1.61%-64.41%). Differences were significant in Va (PEuro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.0092), Py (PEuro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.0001), Ca (PEuro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.0313), and for the whole region (PEuro Surveillance (Bulletin Europeen Sur Les Maladies Transmissibles; European Communicable Disease Bulletin) 0.0023), but not in the rest of the departments. The importance of climate change is shown by shifts in insect and animal distributions. These data reflect the importance of climate on transmission of leishmaniasis and open further investigations related to forecasting and monitoring systems, where understanding the relationship between zoonoses and climate variability could help to improve the management of these emerging and reemerging diseases.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

El Nino Southern Oscillation

Geographic Feature:

resource focuses on specific type of geography

Climate Change and Human Health Literature Portal

None or Unspecified

Geographic Location: ☒

resource focuses on specific location

Non-United States

Non-United States: Central/South America

Health Impact: ☒

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Vectorborne Disease

Vectorborne Disease: Fly-borne Disease

Fly-borne Disease: Leishmaniasis

Model/Methodology: ☒

type of model used or methodology development is a focus of resource

Methodology

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Time Scale Unspecified